

REMARKS/ARGUMENTS

Claims 22 and 23 are added. The claims now in the application are 1 to 23.

Claim 1 is amended to recite the dispersion process by which the claimed aqueous dispersion is obtained. Basis is found in original Claim 14, the substance of which is incorporated by the present amendment. Please see also page 7, line 8 and following of the specification, including the disclosed examples.

Claim 1 is also amended to emphasize that the particles of the powder have the recited structure, basis appearing in the specification at page 3, first paragraph, and following in the specification. Please note page 3, lines 15, 18 and 31 and page 4, lines 2 and 21 and elsewhere.

Claims 1-5 are amended to insert the linking words "possess" (page 1, line 9) and "contains" or "containing" (page 1, lines 14 and 28, page 4, lines 1 and 20) as more descriptive.

Claim 14 is amended for clarification to emphasize that the energy input is for the dispersion operation.

New Claims 22 and 23 recite an upper limit for the average particle size for the claimed dispersions, basis appearing in the disclosure at page 7, line 18. That the size recited is an average particle size is implied by art usage, see also page 7, the paragraph at line 31 and the examples.

DOCUMENT LISTING

Concerning the reference to specific documents appearing in the specification, there is submitted a list on PTO-1449 of the same which do not otherwise appear on form PTO-892 or PTO-1449. Also a copy of the Ullmann's citation, referred to in the last paragraph on page 3, is submitted.

CLAIM REJECTIONS - 35 U.S.C. § 102

Reconsideration and withdrawal of the rejection of Claims 1-6, 8-11 and 16-19 under 35 U.S.C. § 102(b) as being anticipated by Fukugaku et al. (JP 2000-265161) are requested.

As the translation of Claim 1 indicates, the polish particles of Fukugaku et al. are mixed-crystal particles ("the polish particle which consist of a mixed-crystal particle of silica and alumina" is the precise wording of the translation).

The particles of Applicants' dispersion are not such mixed-crystal particles.

A "mixed crystal" is defined as follows in the McGraw-Hill Dictionary of Scientific and Technical Terms, 1974, pg. 955, copy enclosed.:

mixed crystal [CRYSTAL] A crystal whose lattice sites are occupied at random by different ions or molecules of two different compounds. Also known as mix crystal.

Glasstone et al., Elements of Physical Chemistry, 1960, pp. 219 and 220, copy enclosed, equates "mixed crystal" to "solid solution" and notes that such a crystal is homogeneous.

Applicants' claimed dispersion is characterized by two regions, a region containing Si-O-H bonds and the other a silicon dioxide region or crystalline aluminum oxide region.

Such a material is not a homogeneous material and hence is not a mixed crystal.

It may be added that the presence of a surface coating is antithetic to, rather than inherent in, the Fukugaku et al. mixed crystal requirement, and also that such mixed crystal not being alumina, the stability of alumina is irrelevant to the Fukugaku et al. particle.

And the dispersed Fukugaku et al. particles have not been disclosed to be subject to the high energy input specified in the amended claims. There is no apparent basis for the statement that mixing the particles at a shear rate of instant Claim 14 is inherent.

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Reconsideration and withdrawal of the rejection of Claims 1-2, 4-5, 8-9 and 14-15 under 35 U.S.C. § 102(e/a) as being anticipated by Pryor (U.S. 6,294,106) is requested.

The Official Action states that:

Pryor disclose composition and making of abrasive slurries comprising of silica-based particles including SiO_2 , Al_2O_3 and $\text{MgO} \cdot \text{SiO}_2 \cdot \text{Al}_2\text{O}_3$. Pryor further discloses that these mixed oxides could be prepared by either conventional blending or co-gelling procedures.

Applicants observe that the only disclosure in Pryor et al. containing that statement appears at column 3, lines 33 to 56. No examples appear in Pryor et al. relevant to the mixed inorganic oxides. Reference at column 4, the paragraph at line 31, is to U.S. 4,226,743 of Seese et al. This is to a dried hydrogel which may contain precipitated alumina. There is nothing in Pryor et al. or the referred to Seese et al. patent to support a finding that either Pryor et al. or the referred to Seese et al. disclose or suggest Applicants' powder particle structure. Certainly surface coating of the Pryor et al. particles would interfere with their catalytic efficacy. All of the other modifications including these specified BET surface area noted are of the cited reference particles, not those of Applicants, which are different particles.

Reconsideration and withdrawal of the rejection of Claims 12-15 and 20-21 under 35 U.S.C. § 103(a) as being unpatentable over Fukugaku et al. (JP 2000-265161) as applied to Claim 1 above, and further in view of Itakura et al. (JP 2000-133621) or Naoyuki et al. (JP 2000-109810) or Lee et al. (WO 00/17282) are requested.

Since Fukugaku et al. do not disclose the structure of Applicants' particles, the modifications of the slurries disclosed in the subordinate art which relate to additives will not aid the rejection. The additives referred to are the amphoteric biodegradable polymers in Itakura et al. and oxidizing agents, conversion inhibitors in Naoyuki et al.

As for Lee et al., it is noted that Lee et al. at page 7, line 11 to page 8, line 7, do not disclose mixed oxide or heterogeneous particles and do not specifically name aluminum oxide. Hence, it is not at all evident that Lee et al.'s procedure is suitable for the Fukugaku et al. dispersion or also that of Applicants.

The composition claims not being suggested by the prior art, their utility is also not suggested.

Reconsideration and withdrawal of the rejection of Claims 6-7, 10-13 and 16-21 under 35 U.S.C. § 103(a) as being unpatentable over Pryor (U.S. 6,294,106) as applied to Claim 1 above, and further in view of either Sakatani et al. (U.S. 5,804,513) or Kaufmann et al. (U.S. 5,783,489) or Cote et al. (U.S. 6,375,693) are requested.

Again, since Pryor et al. do not disclose the structure specified for the particles in Applicants' claims, modifications relating to pH control or to additives disclosed by the subordinate references Sakatani et al., Kaufmann et al. do not support the rejection. It is not at all evident that the "predominance of alpha and gamma forms (of) alumina in the CMP slurries" in Sakatani, as stated in the Official Action, has any pertinence to Pryor et al. since alumina as such is not disclosed by Pryor et al. to exist in their particles prepared by the "conventional blending or cogelling procedures." The Sakatani invention relates to an aluminum or silica particle containing in addition cerium in or on the particle. This does not suggest Applicants' claimed particle structure.

It is also observed that Kaufmann et al. specify, as to particle size, only less than 400 nm (col. 5, lines 32 to 34 and the paragraph at line 50). Applicants' new Claims 22 and 23 specify less than 150 nm and 100 nm respectively.

Reconsideration and withdrawal of the rejection of the provisional rejection of Claims 1-2, 4-6, 8 and 16 under the judicially created doctrine of double patenting over Claims 1-2, 5 and 11 of copending Application No. 10/199,504 are requested. The Official Action states

this is a provisional double patenting rejection since the conflicting claims have not yet been patented.

It is difficult to see that the subject claims relating to an aqueous dispersion and its preparation of particles of a specified structure raise a question of double patenting with respect to Application Serial No. 10/199,504 published as U.S. 2003/0095905 A1.

Claim 1 of the published application relates to a mixed oxide per se, not to an aqueous dispersion.

While Claim 2 of the published application relates to a dispersion, it is not limited to an aqueous dispersion. Nor is it at all evident that the oxide recited in Claim 1, to which Claim 2 refers, responds to the structure specified in Applicants' claims.

Claim 5 of the published application relates to a ceramic material, not a dispersion.

As for Claim 11, it is a "use claim" and in any event it is not at all clear that it is directed to or includes within its scope a dispersion of the particles. And again, it is not evident that the particles are the same.

As for the final comment, Applicants note that the copending application is directed to a particular mixed oxide and its uses, preferably for coating colors, and hence could not support the subject claims.

Reconsideration and withdrawal of the rejection of Claims 1-7, 14, 16 and 20-21 under the judicially created doctrine of double patenting over Claims 1-7 of U.S. Patent No. 6,455,455 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent are requested.

It is first noted that Deller et al. claims DE 19919635 as a priority application. EP-A 1048617, published February 11, 2000, referred to in the paragraph at page 3, line 18 of the subject application and listed as reference AQ in the submitted form PTO 1449 (English

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Abstract provided), refers to the same priority application. The submitted Abstract of the EPA document also notes that DE 19919635 was published November 23, 2000.

The claims of the subject application as now amended define an advance over the EP-A 1048617, as is evident from the subject disclosure in the paragraph at page 7, line 18 and following. Particular reference is made to the paragraph at page 10, line 15 and Examples 1 to 3.

It is therefore evident that the subject claims as here amended defines an unobvious advance over the Deller et al. U.S. patent claims.

Withdrawal of the stated double patenting rejection is therefore requested.

Favorable action is solicited.


Respectfully submitted,

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